REMARKS

Claims 1-4, 7-9 and 23-25 currently appear in this application. The Office Action of November 1, 2004, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicants respectfully request favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Claims 1-4, 7-9 and 23-24 are rejected under 35 U.S.C. 102(a) as being unpatentable over the admitted prior art (APA) in view of Bair, either LeVan or Frankosky et al., Kennette et al., and further in view of Bryson and further in view of Makoui.

This rejection is respectfully traversed. First of all, it should be noted that the acknowledged prior art teaches two different methods of binding a dryformed fibrous web based on dryformed cellulose web fibers. The first method comprises applying a binder, which is normally of the latex type, onto the web. After this, the web is placed onto a traveling wire and led through a tunnel oven for drying the binder. The web is then transferred to a further wire to have binder material applied by spraying binder material to the other side of the web material. After that, the web is again led through a tunnel oven while the web is carried on a

traveling wire. It is only after this step that the web is self-supporting. This method is for making a dryformed fibrous material.

The second method uses binding fibers, which are also called thermo bonding fibers. These fibers are admixed into the cellulose fibers. The dryformed web material is then fixed as it is led through a heating zone which activates the binding fibers.

There is nothing in the admitted prior art that teaches or suggests a technique in which a combination of the two bonding methods is used in manufacturing a dryformed web.

It should be appreciated that it is difficult, when manufacturing a dryformed fibrous web material, to apply binder fibers to the material and also to spray the aqueous binder onto opposite sides of the material. This combination of prior art techniques would require several tunnel ovens, resulting in a very complicated process and apparatus for manufacture. Moreover, the combination of the two prior techniques involves a risk that the binder applied and activated in a preceding step will deteriorate when the binder is activated in a subsequent step. Thus, even when those skilled in the art face the dust problem and the desire to prevent leakage of small cellulosic materials from the

material there is no motivation to combine the methods when working with dry-formed cellulose fibers.

Bair discloses a carded web, which is not at all the same as a web made according to the present invention. Additionally, the web of Bair is made of a polyester carded web. There is no reason one skilled in the art would look to Bair for a method for making a dry-formed cellulose web.

Frankosky and LeVan add nothing to the art discussed above. Frankosky et al. disclose making polyester fiberfill batts made of polyester fiber and binder fiber, which are then sprayed with a soft resin by oven bonding. LeVan also makes a polyester fiberfill batt, which is not the same as a dry-formed web made of cellulosic fibers.

The product of the present invention is designed to be used for absorbing water. However, the LeVan batt is specifically coated to spray a binder material onto the surface to seal the outer surface (column 1, lines 53-54). When the outer surface of the LeVan batt is sealed liquid will not enter the batt, unlike the present invention. LeVan uses this binder material to prevent fibers form working themselves out of the batt when the batt is in use.

Frankosky et al. deal with the same problem as LeVan. Frankosky et al., however, teach a homogeneous mixture of polyester fibers and binding fibers throughout the product.

Frankosky et al. teach card-formed layers rather than the dry-formed layers of the present invention. Moreover, the Frankosky et al. product is sealed, which means that, unlike the web of the present invention, it cannot absorb liquids. At column 2, lines 45-52, it is taught that the surface is sealed to prevent the long polyester fibers from working themselves out of the product when the product is used. This is not at all the same as trapping dust particles.

Kennette et al. have nothing to do with dry-formed batts and how the cellulosic material can be retained in a web. Kennette et al. disclose fiber entanglement for producing a fibrous web. After the rayon fibers are entangled to form a web, dried, and then sent to a bonding station where an aqueous resin binder composition is applied uniformly to the dried web. In this case the binder is applied to prevent wet collapse of the fabric. Kennette et al. teach that the fibers are fixed in the positions they have by hydro entanglement. There is neither teaching nor suggestion of binding dust particles.

Bryson discloses an absorbent body having selected patterns of high absorbency material distributed therein, rather than solely in the center of the body.

Makoui adds nothing to the formerly cited patents, as Makoui uses much more binding material than in the present

invention, and Makoui teaches the use of suction to draw the latex binder into the web. This is the opposite of the process of the present invention, in which the binding material is applied only to the top surface and the bottom surface of the web.

Claims 1-4, 7-9 and 23-24 are rejected under 35 U.S.C. 103(a) as unpatentable over Makoui in view of Bair, either LeVan or Frankosky et al. or Kennette et al.

This rejection is respectfully traversed. The claims have been amended to recite that the binder is applied to the top surface and the bottom surface of the web. Support for this can be found in the specification as filed at page 7, paragraph 0021, and at page 8, paragraph 23.

> As noted above, in the bonding method the bonding of fibers in the web is best at the surface of the web and poorest at the center of the web. However, if conventional bonding is combined with the use of thermo bonding fibers, the bonding *per se* seals against dusting of the fibers, so that only a very thin surface layer of bonding material is needed to coat the surface of the web. The web material is held together by activating the thermo bonding fibers, and a surface binder is applied simultaneously onto both sides of the already self-

supporting web. Both of the applied binder layers, which can be extremely thin and still be effective, can be hardened by passing them through a single additional heating zone with relatively low capacity.

It is thus a main feature of the present invention to produce webs by fiber bonding wherein the webs are made of admixed thermo bonding fibers. The web surfaces are sealed to a greater or lesser extent by adding binder in modest amounts, without any requirement to provide deep penetration of the binder into the web material.

In contrast thereto, Makoui applies a binder not only to the surface of the web but also to the interior of the web. Column 5, lines 41-44 teach that the latex applied by the dispensing means 30 is drawn into the web by means of the suction box 312 (incorrectly stated as box 3). The same applies for dispensing means 36. These are also used for applying latex which is drawn into the web by means of the suction box 37, as disclosed at column 6, lines 2-7. Since Makoui teaches that the latex should be drawn into the web, it is respectfully submitted that Makoui **teaches against** the present invention, in which the binder layer is only applied to the top and bottom surfaces of the web. The claims have

been amended to recite that the binder layer is applied only to the top surface and the bottom surface, *i.e.*, the binder layer does not penetrate into the web.

There is a clear difference between applying binder, only in a small amount, to form a layer on the top surface and on the bottom surface of a web, compared to the teaching of Makoui, which specifically mentions that suction means should be used in order to draw latex into the web. This teaching of Makoui necessarily means that the latex would be drawn into the web, rather than coating only the top and bottom surfaces of the web. Moreover, Makoui does not teach the specific amount of binder necessary in order to obtain a layer which is placed only on the top and bottoms **surfaces** of the web. There is nothing in Makoui that teaches or suggests using latex in order to form a dust preventing layer. Makoui provides conventional teaching of a conventional way of forming a web and to consolidate the web using latex which permeates the web and goes into the web in order to provide suitable cohesion. This, of course, is not necessary for the web of the present invention, because the thermo bonding fibers provide cohesion; the binder is merely to prevent dusting during web formation.

The present invention uses bonding agent in about 0.5 to 20 grams of dry matter per square meter. Actually, Makoui proposed (column 9, lines 1-6), the use of latex in a

range of from 5-20 weight %, which is far more binding material than in the present invention. The Examiner notes that Makoui does not teach incorporating thermally activated binder fibers. This is correct, and it should be noted that the reason a skilled person in the art using Makoui's teaching would never combine the latex binder with a binding using thermo bonding fibers. The latex of Makoui penetrates the we so that there is no need for bonding fibers in the interior of the web.

The Examiner states that it would have been obvious to make use of thermo activated binder fibers to prevent fiber leakage. It is respectfully submitted that this is an incorrect assumption, seeing that the binder fibers would not effectively be able to prevent dusting by themselves. This is because even a large amount of binder fibers could not possibly contact every single small cellulosic dust particle. While it is conceded that the prior art teaches the use of binder fibers to bind a fiber matrix, and even LeVan teaches a process which is alleged to form a sealed outer surface, then it is also implicitly explained that there would be a fiber leakage.

Claim 25 is rejected under 35 U.S.C. over the references applied above and, further in view of Walter et al.

This rejection is respectfully traversed. The present application is not claiming application of a form to apply a textile treating composition in small amounts as disclosed in Walter et al. The present invention claims a method for forming a web by lying a web of cellulose fibers which have been admixed with thermo bonding fibers onto a forming wire, applying a binder to form binder layers on the top surface and the bottom surface of the web, and heating the web to a temperature sufficient to melt the thermo bonding fibers and increase the tensile strength of the finished product. None of the prior art cited would lead one skilled in the art to prepare a web in this fashion. Walter et al. merely disclose one way of applying the binder material and controlling the amount applied. However, there is nothing in Walter et al. that, combined with the other patents cited, that would lead one skilled in the art to the present invention.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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